

DIVISION 5 — METALS
Section 05120: Structural Steel
SECTION 05120: STRUCTURAL STEEL

PART 1 –GENERAL

1.01 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

- A. This Section includes structural steel, including materials for steel pipe mini-piles.

1.03 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Shop Drawings detailing fabrication of structural steel components.
 - 1. Include details of cuts, connections, holes, and other pertinent data.
 - 2. Indicate welds by standard AWS symbols, distinguishing between shop and field welds, and show size, length, and type of each weld.
 - 3. Indicate type, size, and length of bolts, distinguishing between shop and field bolts.
- C. Qualification data for firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

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1.04 QUALITY ASSURANCE

- A. Fabricator Qualifications: Engage a firm experienced in fabricating structural steel similar to that indicated for this Project and with a record of successful in-service performance.
- B. Comply with applicable provisions of the following specifications and documents:
 - 1. AISC's "Specification for Structural Steel Buildings-- Allowable Stress Design and Plastic Design."
- C. Welding Standards: Comply with applicable provisions of AWS D1.1 "Structural Welding Code—Steel."
 - 1. Present evidence that each welder has satisfactorily passed AWS and WABO qualification tests for welding processes involved and, if pertinent, has been recertified.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Deliver structural steel to Project site in such quantities and at such times to ensure continuity of installation.
- B. Store materials to permit easy access for inspection and identification. Keep steel members off ground by using pallets, platforms, or other supports. Protect steel members and packaged materials from erosion and deterioration.

PART 2 –PRODUCTS

2.01 MATERIALS

- A. Plates and Bars:
 - 1. Carbon Steel: ASTM A 36.
- B. Galvanized Cold-Formed Structural Steel Tubing: ASTM A 500, Grade B.
- C. Anchor Rods, Bolts, Nuts, and Washers: As follows:

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1. Headed Bolts: ASTM A 307, Grade A carbon-steel, hex-head bolts; and carbon-steel nuts.
 2. Plate Washers: ASTM A 36
 3. Finish: Hot-dip zinc-coating, ASTM A 153, Class C.
- D. Welding Electrodes: E-70xx low-hydrogen electrodes complying with AWS D1.0 requirements.

2.02 GALVANIZING REPAIR PAINT

- A. Galvanizing Repair Paint: High-zinc-dust-content paint for regalvanizing welds and repair painting galvanized steel, with dry film containing not less than 93 percent zinc dust by weight, and complying with DOD-P-21035A or SSPC-Paint 20.

2.03 FABRICATION

- A. Fabricate and assemble structural steel in shop to greatest extent possible. Fabricate structural steel according to AISC specifications referenced in this Section and in Shop Drawings.
- B. Remove blemishes in architecturally exposed structural steel by filling, grinding, or by welding and grinding, prior to cleaning, treating, and galvanizing.
- C. Thermal Cutting: Perform thermal cutting by machine to greatest extent possible.
- D. Holes: Provide holes required for securing other work to structural steel framing and for passage of other work through steel framing members, as shown on Shop Drawings. Cut, drill, or punch holes perpendicular to metal surfaces. Do not flame-cut holes or enlarge holes by burning.

2.04 GALVANIZING

- A. Hot-Dip Galvanized Finish: Apply zinc coating by the hot-dip process to all structural steel according to ASTM A 123 for shapes

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and weldments and A153 for fasteners and connectors. Galvanize after welding operations to greatest extent possible.

PART 3 — EXECUTION

3.01 EXAMINATION

- A. Before erection proceeds, verify elevations of bearing surfaces and locations of anchorages for compliance with requirements. Do not proceed with erection until unsatisfactory conditions have been corrected.

3.02 ERECTION

- A. Set structural steel accurately in locations and to elevations indicated and according to AISC specifications.

3.03 FIELD CONNECTIONS

- A. Weld Connections: Comply with AWS D1.1 for procedures, appearance and quality of welds, and methods used in correcting welding work.

3.04 FIELD QUALITY CONTROL

- A. Owner will engage an independent testing and inspecting agency to perform field inspections and tests and to prepare test reports. Testing agency will observe the work and state in each report whether tested Work complies with or deviates from requirements.
- B. Correct deficiencies in or remove and replace structural steel that inspections and test reports indicate do not comply with specified requirements.

3.05 CLEANING

- A. Galvanized Surfaces: Clean field welds, bolted connections, and abraded areas and apply galvanizing repair paint as specified.

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END OF SECTION 05120